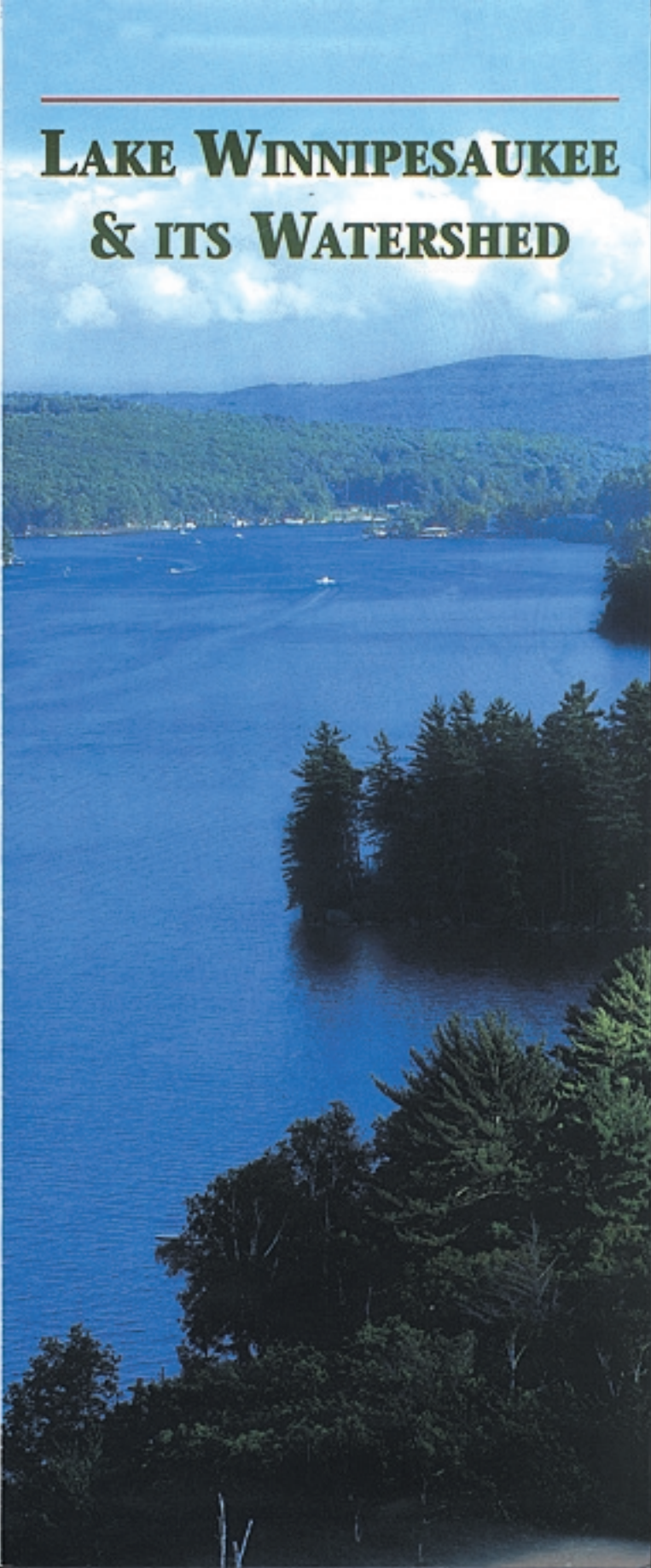


LAKE WINNIPESAUKEE & ITS WATERSHED



CONTACTS

Belknap County Conservation District (BCCD) &
USDA Natural Resources Conservation Service (NRCS)
719 North Main Street, Room 203
Laconia, NH 03246
(603) 527-5880

Carroll County Conservation District (CCCD) &
USDA Natural Resources Conservation Service (NRCS)
P.O. Box 533, 73 Main Street
Conway, NH 03818
(603) 447-2771

Lake Winnepesaukee Association (LWA)
P.O. Box 1624, Meredith, NH 03253
(603) 387-7208

Lakes Region Planning Commission (LRPC)
103 Main Street, Suite #3
Meredith, NH 03253
(603) 279-8171

NH Department of Environmental Services (DES)
6 Hazen Drive
Concord, NH 03301
(603) 271-3503

North Country Resource Conservation
And Development Area (NCRCA&D)
719 North Main Street, Room 220
Laconia, NH 03247
(603) 527-2093

UNH Cooperative Extension (UNHCE)
55 College Road, Petter Hall
Durham, NH 03824
(603) 862-1028 or 1029

Local Offices:
36 County Drive
Laconia, NH 03246-2900
(603) 527-5475
P.O. Box 860
Center Ossipee, NH 03814
(603) 539-3331

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WHAT YOU CAN DO TO PROTECT LAKE WATER QUALITY

Control Nonpoint Source Pollution

The successful control of nonpoint source pollution relies on the cooperation of everyone. You can make the right choices and take the following individual actions to protect water quality:

Shorelands — Shoreland vegetation protects water quality by filtering pollutants such as phosphorus and sediment from stormwater runoff.

- ✓ Maintain or re-establish a vegetative buffer of native trees, shrubs and groundcovers along the shore.
- ✓ Selectively cut and properly prune trees to maintain a view and establish access to the water.

Erosion Control — Stormwater erodes exposed soils, washing large amounts of sediment into the lake. Sediment is also a source of excess phosphorus.

- ✓ Stabilize exposed soils with mulch and prevent further erosion by planting vegetation.
- ✓ Install waterbars or swales on driveways and footpaths to control excess stormwater runoff.

Septic Systems — Septic systems can release poorly treated or untreated effluent, and contaminate adjacent surface and ground waters if they are not properly maintained.

- ✓ Check the sludge level in your septic tank yearly and have it pumped out regularly (every 3-5 years).
- ✓ Do not flush household chemicals into your system that can destroy the necessary bacteria in the tank.

Lawns — When too much fertilizer is applied, grass cannot take up nutrients fast enough, and excess phosphorus may be washed into the lake.

- ✓ Minimize lawn areas and choose low maintenance turf grasses and groundcovers.
- ✓ Use the minimal amount of fertilizer needed and apply it properly. Test your soil to determine its pH level and nutrient needs. The NH Shoreland Protection Act limits the use of fertilizers within 250 feet of the shore.
- ✓ Limit your use of herbicides and pesticides and choose natural alternatives.
- ✓ Mow your lawn to its proper height (2-4"), leave grass clippings on the lawn and do not over water.

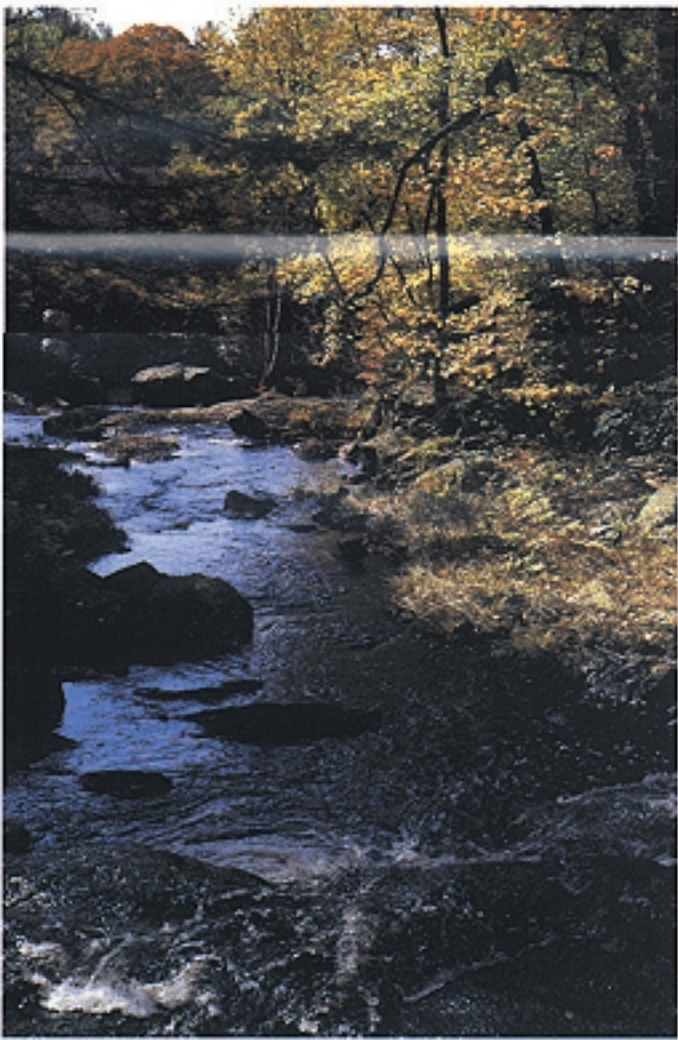


Photo: Bobb Smith

Wetlands — Wetlands provide essential wildlife and fish habitat, recreation and educational opportunities, visual and aesthetic values, and help protect water quality.

- ✓ Avoid disturbing wetland areas and establish and maintain vegetative buffers between developed land and wetlands.
- ✓ Do not dredge, fill or work in wetlands without obtaining the necessary state and local permits.

Household Hazardous Products — Many common household products such as oil-based paints, solvents, automotive fluids and cleaners contain hazardous or toxic chemicals.

- ✓ Select the least toxic product available, read the label carefully and substitute non-toxic alternatives, whenever possible.
- ✓ Do not dispose of household hazardous products in a sink, down a storm drain or on the ground. Store and bring them to collection sites such as those promoted during the Lakes Region Annual Household Hazardous Waste Collection Day, where they will be properly disposed or recycled.

Boating — Fuel and oil, boat sewage, detergents, and paints are just a few of the pollutants that can be contributed by the individual boater.

- ✓ Wash boats in designated wash areas that do not drain directly into the lake. Use environmentally responsible cleaning products and marine paint.
- ✓ State law prohibits the discharge of boat sewage or sink and shower waste into the state's lakes or rivers. Always use your Marine Sanitation Device or "porta-potty", and pump out any holding tanks regularly.

Don't Feed the Ducks

Feeding ducks helps spread a condition called swimmer's itch. Ducks carry a parasite which can cause an allergic skin reaction with symptoms much like a mosquito bite or case of poison ivy.

Prevent the Spread of Milfoil

Milfoil is an exotic aquatic plant that spreads rapidly, displaces beneficial native plants and makes swimming and boating difficult. Preventing the spread of nuisance exotic weeds is the best solution to this problem. Remove plant fragments from boats and trailers, and dispose of these plants properly to prevent them from being carried to a new site.

Stop the Zebra Mussel

Zebra mussels have begun to infest freshwater resources of the Northeast. They colonize intake pipes, clog boat engine cooling systems and overwhelm native shellfish. To minimize the risk of spreading zebra mussels to clean waters, always inspect and remove weeds from your boat and trailer, and don't carry water, bait or fish from one waterbody to another. If you have been boating in zebra mussel-infested waters, flush the cooling system, bilge areas and live wells with tap water, and leave your boat out of the water for 48 hours or wash the boat under high pressure with hot water (>100°F).



What Keeps Lake Winnepesaukee Clean?

The relatively high quality, swimmable and fishable waters of Lake Winnepesaukee didn't just happen. Federal and state governments and local communities have invested more than \$70 million in clean-up facilities over the last 25 years. The most massive project is a regional collection system designed to treat municipal sewage from 10 communities in the Winnepesaukee River Basin. Completion of this project significantly reduced pollution to the lake from inadequately treated sewage and failing septic systems. In addition, all the *lakelront communities* have enacted local ordinances aimed at reducing pollution to the lake. These ordinances govern the potentially adverse impacts to water quality from site development on substandard lots or steep slopes, soil erosion, stormwater runoff, and the filling of wetlands.

Efforts to maintain the quality of Lake Winnepesaukee and its tributaries continue today. Recent projects in the watershed that have received funding under the Federal Clean Water Act to correct existing water quality problems include improvements at a marina to control contaminated runoff; erosion controls and improved manure management in the Poor Farm Brook watershed (Gunstock Ski Area); stormwater controls in Laconia; the development of model ordinances for shoreland and wetlands protection, subsurface wastewater disposal systems and stormwater management; a water quality trend analysis of the Lake; seed money for the Lake Winnepesaukee Watershed Partnership; and a boat inspection program on the Lake to ensure compliance with state laws.

Visitors and residents alike can also play a part protecting water quality by acting as if what they do on the land and water makes a difference — it does!



Photo: Bobb Smith

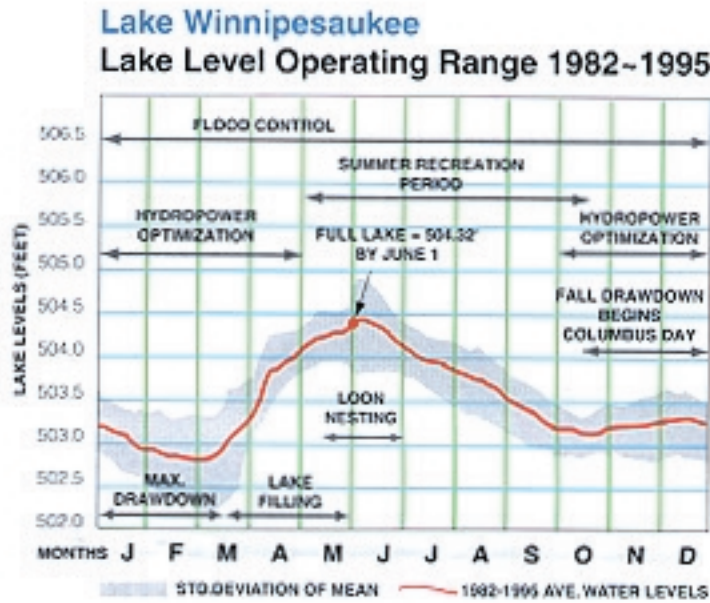
Winnepesaukee Lake Levels

Lake Winnepesaukee and its watershed are managed to meet the multiple needs of recreation, fish and wildlife habitat, flood control and hydroelectric power, as well as the interests of those people who live along its shores and downstream. There are also different needs and priorities throughout each season. Water management efforts seek to meet these various needs within the hydrologic constraints of floods, droughts, hurricanes, blizzards and snowless winters.

In the Summer, maintaining a full lake for recreation is the highest priority. To achieve this, discharges are kept to a reasonable historic minimum. By Fall, the lake is usually down, helping to reduce flooding during hurricane season. Minimum flows are maintained to protect riverine aquatic life. In November, water management focuses on managing flows and the release of stored water to optimize hydroelectric power production.

Late Spring and early Summer pose the greatest management challenge due to competing interests and variability in the weather. The challenge is to fill the lake with spring runoff, but not so early as to cause shoreline damage from the ice or flooding. Loon nesting, which necessitates having the lake near full, begins in early May. With the lake near full in May and June, there is a threat of flooding from occasional heavy rains. Often, the lake will rise several inches over full during this period.

Flood control is a priority throughout the year, both around the lake and along the Winnepesaukee River. Beginning in the Fall and continuing through the Winter, the lake is lowered nearly two feet from normal Summer full levels to control Spring snowmelt and rains. Snow surveys are conducted in late Winter and Spring to measure snow water content and density. The actual amount of drawdown and rate of fill is variable from year to year.



LAKE WINNIPESAUKEE WATERSHED PARTNERSHIP

The Lake Winnepesaukee Watershed Partnership is a regional effort to promote water quality protection. The cooperating organizations of the Partnership are working with businesses, municipalities, local organizations and individuals to address lake issues. Overall, the Partnership is providing the information we need to become better stewards of the watershed. The partnership's goal is to protect the region's natural, recreational and cultural resources, and to enhance its economic outlook. For more information, please see the list of contacts.

"A Clean Lake is a Reflection of Us All."



Metamorphic Granitic Igneous

Geology

The Lake Winnepesaukee Region is underlain by metamorphic, granitic and igneous rocks. The older metamorphic rocks originated as ocean sediments over 400 million years ago. This ocean disappeared when the Earth's continents collided and created a new supercontinent, Pangea. During this period, 325 million years ago, the region resembled the modern Himalayas.

Pangea began to break apart about 200 million years ago, after 7 miles of its surface had eroded. This continental extension allowed magma to rise to the surface forming volcanoes about 180 million years ago. The volcanoes were about 3 miles above the regional mountains of today and were the superstructure of mountains such as the Ossipee and Belknap Ranges. These mountains are dominated by igneous rocks which are mostly the "root systems" that fed the surface volcanoes.

The onset of glaciation in the region during the Pleistocene Epoch, about 100,000 years ago, found the land surface remarkably similar to what is seen today. There were actually two major pulses of ice advance to the southeast, each bringing more than 5,000 feet of ice cover to the region. The last receding ice front passed northwesterly through the region about 14,500 years ago.

Lake Winnepesaukee is the remnant of a much larger glacial lake system. At the time of the last glaciation, there were few, if any, large lakes in the region because the drainage had become well integrated between the two major ice advances. The modern lakes have resulted mostly from the blockage of their valleys by glacial materials during the last advance and are being gradually returned by erosion to the pattern preceding the ice age.

OUTDOOR RECREATION

The Lakes Region is known for its recreational opportunities. The following is a list of the more popular types of outdoor recreation and where to get more information. For vacation information, contact the Lakes Region Association, P.O. Box 430, New Hampton, NH 03256 at 603-744-8664 or 800-60-LAKES. For information on attractions, lodging, and state parks contact the NH Office of Travel & Tourism Development at 603-271-2343 to request a copy of the *New Hampshire Guidebook*. For additional information, contact one of the Chambers of Commerce listed below.

Alton/Alton Bay	875-5777
Center Harbor/Moultonborough	253-4582
Greater Laconia/Weirs Beach	524-5531
Meredith	279-6121
Wolfeboro	569-2200

Boating

Enjoy the summer with a season filled with boating. Whether you prefer cruising across the lake in a speed boat or paddling the calmer waters of the smaller ponds in a canoe, the Lakes Region has a host of boating opportunities. There are many places to rent a motor boat, canoe, sailboat, sailboard or even kayak. Look under Boat Dealers in the phone book for rentals.

Camping

Camping is a favorite pastime of visitors to the Lakes Region. Many private and public campgrounds offer a wide range of camping experiences. For more information contact the NH Campground Owners' Association, P.O. Box 320, Twin Mountain, NH 03595 at 603-846-5511 or the NH Division of Parks and Recreation at 603-271-3254.

Fishing

The Lakes Region offers anglers many different and challenging opportunities to catch a variety of both cold and warm water fish. Pick up a copy of the *New Hampshire Freshwater Fishing Digest* by contacting the NH Fish and Game Department Region 2 Office in New Hampton at 603-744-5470, or stop by your local bait and tackle shop for more information.

Bicycling

From leisurely rides along quiet back roads to wild rides down mountain trails, the Lakes Region provides bicyclists an astounding variety of terrain. For information about mountain biking contact the NH Bureau of Trails at 603-271-3254. Recreational bikers may contact the Granite State Wheelmen at 603-898-5479, or stop by your local bike store.

Snowmobiling

New Hampshire offers snowmobile enthusiasts an extensive network of groomed trails. Contact the New Hampshire Snowmobile Association at 603-224-8906 for information about local snowmobile clubs or the NH Bureau of Trails at 603-271-3254 for information about snowmobile trails.

Skiing

The Lakes Region offers alpine and cross-country skiing. For alpine ski conditions call 800-258-3608 and for cross-country ski conditions call 800-262-6660. For more information on skiing, snowboarding and winter vacations, contact Ski New Hampshire, P.O. Box 10, North Woodstock, NH 03262 at 800-88-SKI-NH (800-887-5464) or the Gunstock Recreation Area located in Gilford at 603-293-4341 or 800-486-7862.

WILDLIFE

Mammals

If you are in the Lakes Region, you can expect to see virtually any of New Hampshire's wild mammals. Otter, beaver, muskrat and mink can be viewed working and playing in the lakes and wetlands. Moose, deer and black bear are found in wetland areas foraging for aquatics growing in shallow water or succulent vegetation growing along the shoreline. If you are very lucky, you may catch a glimpse of a bobcat, or hear coyotes sing on a summer evening. Whatever wild animal you are privileged to see, please do not feed or attempt to approach it. Enjoy wild animals from a distance, and let New Hampshire's wildlife remain wild.

Birds

Songbirds such as Bobolinks and Eastern Meadowlarks can be seen nesting in the remaining fields of the Lakes Region, while Red-Eyed Vireos, Scarlet Tanagers and Baltimore Orioles nest in the forests dominating the landscape. Barred Owls, Northern Goshawks and Broad-Winged Hawks represent the more common birds of prey in the area. Bald Eagles and Ospreys occur fairly regularly during the spring and fall migration, and a few Eagles remain in winter near open water where they can catch fish and prey on waterfowl. The open expanses of the lakes themselves provide excellent areas for Tree Swallows and Eastern Kingbirds to forage for insects. The Lakes Region has one of the last known colonies of Purple Martins in the State which nest in boxes constructed by local residents.

Waterfowl

Waterfowl that may be viewed on Lake Winnepesaukee during migration include Snow Geese, Green-winged Teal, Northern Pintail, and American Wigeon. Bay ducks that migrate through the Lakes Region include Canvasback, Ring-necked Duck, Greater Scaup and Lesser Scaup. Sea ducks and mergansers also land on fresh water as they make their way to the ocean. These include Oldsquaw, Black Scoter, Surf Scoter, Bufflehead and Red-breasted Merganser. The one species of stiff-tailed ducks that may be seen off the New Hampshire coast, the Ruddy Duck, also uses large lakes as stop-overs on migration. Breeding waterfowl on Winnepesaukee include Canada Geese, Wood Duck, American Black Duck, Common Merganser and the well-known Mallard.

Loons

Common Loons (*Gavia immer*) herald the coming of spring by returning on the day of ice-out to the Lakes Region. Males arrive first to the traditional nesting territory, and are soon joined by a female. Loons are adapted uniquely for aquatic living. They are solid-bodied, with legs and feet positioned far back on their bodies to facilitate diving. Loons, therefore, choose nesting areas very close to water, generally within 18 inches. They are highly vulnerable to disturbance and require safety and security in order to incubate for the 29 days it takes to hatch the one or two eggs each pair lays.

Natural threats to the Common Loon include raccoons, gulls, ravens and crows. Lead sinkers are the leading cause of loon mortality. Other threats include fish line entanglement and air pollution. Human disturbance, either by approaching the nest site, or harassing loons on the water, is illegal. Loons are a threatened species in New Hampshire and are protected under the State Endangered Species Conservation Act.

Fish

Lake Winnepesaukee offers a variety of aquatic habitats. Native fish include lake trout, cusk, whitefish and smelt. In addition, there are several introduced species including landlocked salmon, rainbow trout, and small and largemouth bass. Introduction of the rainbow trout occurred in 1990, while smallmouth bass, introduced in the 1860's, are now considered a naturalized species. In early Spring, the cold waters and warmer temperatures create ideal fishing conditions for landlocked salmon and lake and rainbow trout. During the Summer months, it's time to look for smallmouth bass, in addition to perch, pickerel, sunfish and bullheads. Trout, salmon and bass are abundant, feeding heavily in the Autumn, sensing the urge of spawning seasons and the cold Winter ahead.

CREDITS

Prepared by: Lakes Region Planning Commission and North Country Resource Conservation and Development Area
Graphic Design: Todd Smith
Contributors: Lakes Preservation Committee, NH Dept. of Environmental Services, NH Dept. of Fish and Game and University of New Hampshire Cooperative Extension

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Photo: Bobb Smith

Hiking

Hikers in the Lakes Region are rewarded with spectacular views of the lakes and surrounding mountain ranges. Popular trails include the Mt. Major Trail in Alton, Red Hill Trail in Moultonborough, Belknap Mtn. Trails in Gilford, and Mt. Shaw Trail in Tuftonboro. For a complete description of these and other hikes, pick up a copy of the AMC White Mountain Guide at your local outdoors store or contact the AMC Pinkham Notch Office at 603-466-2727.

Hunting

There are many hunting opportunities throughout New Hampshire's seasons. Pick up a copy of the *New Hampshire Hunting and Fishing Digest* by contacting the NH Fish and Game Department Region 2 Office in New Hampton at 603-744-5470, or stop by your local outfitter for more information.



Photo: Bobb Smith